

The Antimicrobial Resistance Rogues Gallery

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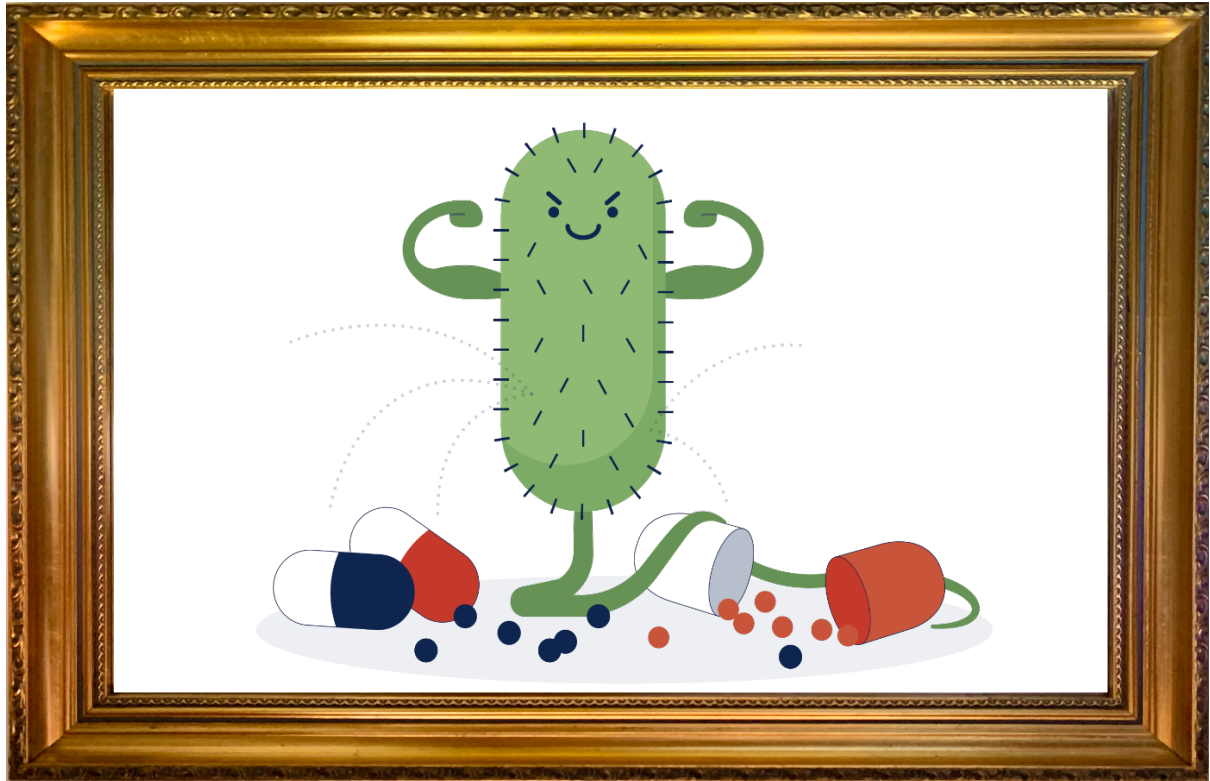


Image by Elena Contel Maza

Antimicrobials are wonder drugs: they inhibit or destroy microbes that infect us and that might otherwise make us very ill or even kill us. Their development and use as therapies have saved countless – millions of – lives and healthcare today is unthinkable without them. And yet we are currently in the middle of the *global antimicrobial resistance crisis* – one of the greatest challenges facing medicine today, according to the World Health Organisation. Why is this? Most antimicrobials in our arsenal of therapeutics and potential therapeutics have been found in microbes themselves: they are key components of the attack-defence systems microbes have to compete against other microbes that would like to occupy the same environmental niche and take advantage of the food it offers. For a microbe to avoid being killed by the antimicrobial it produces, it must also have a resistance mechanism. Additionally, bacteria have different stress response networks that enable them to thrive in challenging environments, which also contribute to their ability to resist antimicrobials. So antimicrobial resistance is a natural phenomenon that is an essential feature of producing antimicrobials, or as a consequence of the bacterial ability of adapting to changing conditions. The problem is the misuse of antimicrobials by humans, in particular their massive use in food animal husbandry and aquaculture, which has killed off many sensitive microbes, selected resistant ones, allowed them to proliferate everywhere and, crucially, to transmit their resistances to other microbes, especially pathogenic microbes. *Let's learn more about antimicrobial resistance, the crisis it poses, and the ways and means we are confronting its challenge!*